

FORM PTO-1390  
(Rev 5-93)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER

ZAHFRI P393US

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

10/018412

INTERNATIONAL APPLICATION NO.

PCT/EP00/06744

INTERNATIONAL FILING DATE

July 14, 2000

PRIORITY DATE CLAIMED

July 20, 1999

TITLE OF INVENTION

POWER DISTRIBUTION TRANSMISSION

APPLICANT(S) FOR DO/EO/US

Martin HILDEBRAND and Rudolf ZENTSCH

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau. (PCT/IB/308 mailed 25 January 2001).
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)) is attached.
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98 with PTO FORM 1449.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification w/Marked-Up Version of Amended Specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:
 

<input checked="" type="checkbox"/> Preliminary Examination Report <input checked="" type="checkbox"/> Annexes to Pre. Ex. Rep. <input type="checkbox"/> International Search Report <input checked="" type="checkbox"/> German Novelty Search Report <input checked="" type="checkbox"/> 14 copies of citations <input checked="" type="checkbox"/> Form PCT/IB/308 <input checked="" type="checkbox"/> International Publ. No. WO 01/06150 A1 (Face page only)	<input checked="" type="checkbox"/> Copy of Request <input checked="" type="checkbox"/> Submission of Formal Drawings <input checked="" type="checkbox"/> 4 sheets of formal drawings <input checked="" type="checkbox"/> Abstract <input type="checkbox"/> Applicant Claims Small Entity Status <input type="checkbox"/> Copy of Notification of File Missing Parts <input type="checkbox"/> German Language Specification
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CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith is being deposited with the United States Postal Service on this date **December 13, 2001** in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number **EL 918841513 US** addressed to the: Box PCT, Assistant Commissioner of Patents, Washington, D.C. 20231.

Anthony G. M. Davis

(typed or printed name of person mailing paper)

(signature of person mailing paper)

PATENT & TRADEMARK OFFICE



020210

## 17. ■ The following fees are submitted:

**Basic National Fee (37 CFR 1.492(a)(5):**

Search Report has been prepared by the EPO or JPO ..... \$890.00

International preliminary examination fee paid to USPTO (37 CFR 1.492)(a)(1) .. \$710.00

No international preliminary examination fee paid to USPTO (37 CFR 1.492)(a)(2)  
but international search fee paid to USPTO (37 CFR 1.445(a)(2)). ..... \$740.00

Neither international preliminary examination fee (37 CFR 1.492)(a)(3)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$1040.00

International preliminary examination fee paid to USPTO (37 CFR 1.492)(a)(4)  
and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

CALCULATIONS

PTO USE ONLY

JC13 Rec'd PCT/PTO 13 DEC 200

890

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months  
from the earliest claimed priority date (37 CFR 1.492(e)).

0

Claims

Number Filed

Number Extra

Rate

Total Claims

6 - 20 =

0

x \$18.00

0

Independent Claims

1 - 3 =

0

x \$84.00

0

Multiple dependent claim(s) (if applicable)

+ \$280.00

0

TOTAL OF ABOVE CALCULATIONS =

0

Reduction by 1/2 for filing by small entity, if applicable. **Applicant Claims Small Entity**  
**Status.** (Note 37 CFR 1.9, 1.27, 1.28).

0

SUBTOTAL =

890

Processing fee of \$130.00 for furnishing the English translation later the ☐ 20 ☐ 30 months  
from the earliest claimed priority date (37 CFR 1.492(f)).

+

0

TOTAL NATIONAL FEE =

0

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

+

40

TOTAL FEES ENCLOSED =

930

Amount to be:  
refunded

\$

charged

\$

a. ■ A check in the amount of \$ 930.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. 04-0213 in the amount of \$        to cover the above fees.  
A duplicate copy of this sheet is enclosed.

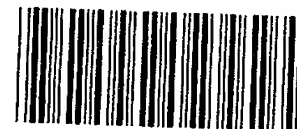
c. ■ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to  
Deposit Account No. 04-0213. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

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PATENT &amp; TRADEMARK OFFICE



020210

12/13/01

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Martin HILDEBRAND and Rudolf ZENTSCH  
Serial no. :  
For : POWER DISTRIBUTION TRANSMISSION  
Docket : ZAHFRI P393US

**BOX PCT**

The Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**FIRST PRELIMINARY AMENDMENT**

Dear Sir:

By way of preliminary amendment, please amend the above identified application as set forth below.

**In the Specification:**

Please cancel paragraphs 2, 3, 4, 8, 9, 11, 12 and 17 of the specification, in their entirety, in favor of a clean form of paragraphs 2, 3, 4, 9, 11, 12 and 17 of the specification, without any markings thereon, as follows. Accompanying this response is a copy of the original paragraphs of the specification which show the addition(s) (by underlining, shading and bold) and the deletion(s) (by strikeout) to the canceled specification paragraphs. Please enter the replacement specification paragraphs into the record of this case.

**In the Claims:**

Please cancel claims 1-7, without prejudice or disclaimer of the subject matter therein, in favor of new claims 8-13 as follows.

[002] FIELD OF THE INVENTION

[003] The invention concerns a power distribution transmission.

[004] BACKGROUND OF THE INVENTION

[009] SUMMARY OF THE INVENTION

[011] BRIEF DESCRIPTION OF THE DRAWINGS

[012] The invention will now be described, by way of example, with reference to the accompanying drawings in which:

[017] DETAILED DESCRIPTION OF THE INVENTION

8. (NEW) A power distribution transmission having one mechanical and one hydraulic power branch, a hydraulic pump (1) and a hydraulic motor (3) being interconnected in the hydraulic power branch and retained in a transmission housing (7) via elastic damping elements (5) and only in the area in which they are interconnected are said hydraulic pump (1) and said hydraulic motor (3) connected via damping elements (5) with a transmission housing (7), and said hydraulic pump (1) and said hydraulic motor (3) communicate with said mechanical power branch via shafts (12, 17) which are floatingly supported, wherein said shafts (12, 17) have one of crowned teeth and spiral gearing at connecting points (14, 19).

9. (NEW) The power distribution transmission according to claim 8, wherein toothed wheels (13, 16), which are connected via shafts (12, 17) with a hydraulic pump (1) and a hydraulic motor (3), are supported by bearings (15, 20) in a transmission housing (7).

10. (NEW) The power distribution transmission according to claim 8, wherein said hydraulic motor (3) is connected via an intermediate plate (2) with said hydraulic pump (1) which has receptacles (4) for said damping elements (5).

11. (NEW) The power distribution transmission according to claim 10, wherein said receptacles (4) for said damping elements (5) are radially disposed around an axis of rotation (9) of said hydraulic pump (1).

12. (NEW) The power distribution transmission according to claim 8, wherein said hydraulic motor (3) is connected via an intermediate plate (2) with said hydraulic pump (1) which has centering receptacles (110) for centering said intermediate plate (2) in a transmission housing (7).

13. (NEW) The power distribution transmission according to claim 8, wherein said damping elements are situated in one plane.

## REMARKS

Accompanying this response, please find marked-up paragraphs of the specification which overcome some informalities noted in the specification. The undersigned avers that the enclosed replacement paragraph(s) of the specification do not contain any new matter.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



Anthony G.M. Davis, Reg. No. 27,868

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04-0213

[001] POWER DISTRIBUTION TRANSMISSION

[002] FIELD OF THE INVENTION

[003] The invention concerns a power distribution transmission of the kind defined in detail in the preamble of Claim 1.

[004] BACKGROUND OF THE INVENTION

[005] Power distribution transmissions, especially as continuously variable transmissions, are often used to drive motor vehicles, particularly field tractors. Especially adequate here are power distribution transmissions having a mechanical power branch and a hydraulic power branch consisting of a hydraulic pump and a hydraulic motor, preferably with a pump of adjustable displacement. Since during operation of the power distribution transmission, mainly the hydraulic power branch produces strong vibrations which in case of fixed connection of the hydraulic motor and the hydraulic pump with the transmission housing pass on the vibrations to the transmission housing causing loud noise, the hydraulic pump and the hydraulic motor have to be uncoupled from the transmission housing.

[006] DE 44 01 509 A1 discloses a continuously variable transmission with power distribution, especially for motor vehicles, which consists of a hydraulic power branch and a mechanical power branch, there being interconnected in the hydraulic power branch a hydraulic pump and a hydraulic motor and in order to uncouple the hydraulic motor and the hydraulic pump from the housing, they are retained in the transmission housing by damping elements. Damping elements are mounted respectively on each side of the hydraulic motor-pump unit through which the forces in the transmission housing can be transmitted. The suspension is configured so as to create a three-point support which is mounted respectively on the input and output side of the continuously variable converter, consisting of the hydraulic pump and the hydraulic motor, as central bearing for fixing the position of the central axle of the continuously variable converter in relation to the transmission housing and a third bearing as supporting bearing for torque support and optionally axial support of the continuously variable converter and that the central bearing is designed so as to make possible a rotation of the continuously variable converter around its central axle against the torque-supporting bearing.

In order to make possible mounting in the transmission housing, the hydraulic motor and the hydraulic transmission with the damping devices, the transmission has to have a divided housing in order to make possible the installation of the hydraulic motor and the hydraulic pump in the transmission housing. If manufacturing tolerances appear, it is possible with this arrangement that the hydraulic motor and the hydraulic pump is installed transversely in the transmission housing whereby, during operation of the power distribution transmission, the damping elements are already compressed to their initial position with the result that the damping of noise is considerably limited. In the transmission, since the input wheels for driving the hydraulic pump and the output wheels on the hydraulic motor are fixedly connected with the shafts of the hydraulic pump and of the hydraulic motor, vibrations and therewith movements are directly transmitted to the running gears in the mechanical power branch whereby the engagement geometry of the running gears is constantly altered.

[007] The problem on which this invention is based is to provide a power distribution transmission having a hydraulic and a mechanical power branch in which the vibrations of the hydraulic power branch are only dampedly emitted to the parts surrounding the hydraulic power branch and the hydraulic power branch stands out by easy installation in the transmission housing.

[008] The problem is solved with a power distribution transmission according to the preamble of the main claim and also having the characteristic features thereof.

[009] **SUMMARY OF THE INVENTION**

[010] According to the invention, the hydraulic power branch consists of a hydraulic pump and a hydraulic motor which are interconnected and in the area of the connection of the hydraulic motor and the hydraulic pump are connected via damping elements with the transmission housing. The hydraulic motor and the hydraulic pump are preferably interconnected via an intermediate plate, which radially to the axis of rotation of the hydraulic pump, has receptacles for the damping elements by which the intermediate plate can be connected with the transmission housing. But it is also possible to situate the damping elements in



motor cannot be transmitted to the running gears of the toothed wheels. It is hereby ensured that the running gears always have the same engagement geometry during operation. Since crowned teeth or a spiral gearing have a smaller contact surface than a straight toothing, the bone conduction is transmitted to a lesser extent than in a standard toothed shaft connection. The hydraulic power branch is thus, on one hand, supported with dampened vibration in the transmission housing in one plane, via the damping elements in the center of gravity of the hydraulic motor whereby an optimal degree of freedom and an easy installation are obtained and, on the other, connected via shafts having crowned teeth with the mechanical power branch whereby the bone conduction is also reduced.

[011]        **BRIEF DESCRIPTION OF THE DRAWINGS**

[012]        ~~Other features can be understood from the description of the figures which show~~  
**The invention will now be described, by way of example, with reference to the accompanying drawings in which:**

[013]        Fig. 1 a dampened suspension of the hydraulic pump and of the hydraulic motor;

[014]        Fig. 2 a dampened suspension of the hydraulic pump and of the hydraulic motor;

[015]        Fig. 3 a side view of the hydraulic pump and of the hydraulic motor; and

[016]        Fig. 4 the connection of the hydraulic motor and of the hydraulic pump with toothed wheels which are connected with the mechanical power branch.

[017]        **DETAILED DESCRIPTION OF THE INVENTION**

[018]        Fig. 1:

A hydraulic pump 1 is connected via an intermediate plate 2 with a hydraulic motor 3 and forms the hydraulic power branch of a power distribution transmission. The intermediate plate 2 has receptacles 4 in which are placed damping elements 5 connected via connecting elements 6 with the transmission housing 7. The damping elements 5 are configured so that the intermediate plate 2 has no

[001] POWER DISTRIBUTION TRANSMISSION

[002]

[003] The invention concerns a power distribution transmission of the kind defined in detail in the preamble of Claim 1.

[004]

[005] Power distribution transmissions, especially as continuously variable transmissions, are often used to drive motor vehicles, particularly field tractors. Especially adequate here are power distribution transmissions having a mechanical power branch and a hydraulic power branch consisting of a hydraulic pump and a hydraulic motor, preferably with a pump of adjustable displacement. Since during operation of the power distribution transmission, mainly the hydraulic power branch produces strong vibrations which in case of fixed connection of the hydraulic motor and the hydraulic pump with the transmission housing pass on the vibrations to the transmission housing causing loud noise, the hydraulic pump and the hydraulic motor have to be uncoupled from the transmission housing.

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In order to make possible mounting in the transmission housing, the hydraulic motor and the hydraulic transmission with the damping devices, the transmission has to have a divided housing in order to make possible the installation of the hydraulic motor and the hydraulic pump in the transmission housing. If manufacturing tolerances appear, it is possible with this arrangement that the hydraulic motor and the hydraulic pump is installed transversely in the transmission housing whereby, during operation of the power distribution transmission, the damping elements are already compressed to their initial position with the result that the damping of noise is considerably limited. In the transmission, since the input wheels for driving the hydraulic pump and the output wheels on the hydraulic motor are fixedly connected with the shafts of the hydraulic pump and of the hydraulic motor, vibrations and therewith movements are directly transmitted to the running gears in the mechanical power branch whereby the engagement geometry of the running gears is constantly altered.

[007] The problem on which this invention is based is to provide a power distribution transmission having a hydraulic and a mechanical power branch in which the vibrations of the hydraulic power branch are only dampedly emitted to the parts surrounding the hydraulic power branch and the hydraulic power branch stands out by easy installation in the transmission housing.

[008] The problem is solved with a power distribution transmission according to the preamble of the main claim and also having the characteristic features thereof.

[009]

[010] According to the invention, the hydraulic power branch consists of a hydraulic pump and a hydraulic motor which are interconnected and in the area of the connection of the hydraulic motor and the hydraulic pump are connected via damping elements with the transmission housing. The hydraulic motor and the hydraulic pump are preferably interconnected via an intermediate plate, which radially to the axis of rotation of the hydraulic pump, has receptacles for the damping elements by which the intermediate plate can be connected with the transmission housing. But it is also possible to situate the damping elements in

receptacles of the transmission housing and connect them with the intermediate plate. The intermediate plate can also be designed integrally with the housing of the hydraulic motor or the housing of the hydraulic pump. While the hydraulic pump and the hydraulic motor, dampened on their connecting point with the damping elements located in one plane, are supported in the transmission housing, the hydraulic pump-motor unit is retained in the area of its center of gravity and can move in all three axle planes against the elasticity of the damping elements. A separation of the transmission housing is not required, since the intermediate plate can be installed in the transmission housing from one side of the pump-motor unit via fastening elements, preferable a screw connection. The pump-motor unit thus has to be fastened only in its half of the transmission housing. The transmission housing preferably has receptacles for centering pins with which, during the installation, the hydraulic pump and the hydraulic motor are centered in the transmission housing and then connected with the transmission housing by the damping elements. After the hydraulic pump and the hydraulic motor have been fastened in the transmission housing by the damping elements, the centering pins can be removed again. Hereby is ensured a simple installation where, even in the presence of manufacturing tolerances, the hydraulic pump and the hydraulic motor can be installed in the position in which the hydraulic motor-pump unit achieves the required installation position. Input and output shafts of the hydraulic pump and of the hydraulic motor are connected via shafts with the toothed wheels which are in communication with the mechanical power branch, and are supported floatingly, on one side, in the shafts of the hydraulic pump or of the hydraulic motor and, on the other side, in toothed wheels connected with the mechanical power branch. The shafts each have, on their connections with the toothed wheels and the hydraulic pump or the hydraulic motor, crowned teeth or engaging gears designed as spiral gearing with which can be compensated, in combination with the floating support of the shaft, skewed positions or movements of the hydraulic pump and of the hydraulic motor. The toothed wheels, which accommodate the shaft for connection with the hydraulic motor or the hydraulic pump, are supported in the transmission housing so that movements of the hydraulic pump or of the hydraulic

motor cannot be transmitted to the running gears of the toothed wheels. It is hereby ensured that the running gears always have the same engagement geometry during operation. Since crowned teeth or a spiral gearing have a smaller contact surface than a straight toothing, the bone conduction is transmitted to a lesser extent than in a standard toothed shaft connection. The hydraulic power branch is thus, on one hand, supported with dampened vibration in the transmission housing in one plane, via the damping elements in the center of gravity of the hydraulic motor whereby an optimal degree of freedom and an easy installation are obtained and, on the other, connected via shafts having crowned teeth with the mechanical power branch whereby the bone conduction is also reduced.

[011]

[012] Other features can be understood from the description of the figures which show:

[013] Fig. 1 a dampened suspension of the hydraulic pump and of the hydraulic motor;

[014] Fig. 2 a dampened suspension of the hydraulic pump and of the hydraulic motor;

[015] Fig. 3 a side view of the hydraulic pump and of the hydraulic motor; and

[016] Fig. 4 the connection of the hydraulic motor and of the hydraulic pump with toothed wheels which are connected with the mechanical power branch.

[017]

[018] Fig. 1:

A hydraulic pump 1 is connected via an intermediate plate 2 with a hydraulic motor 3 and forms the hydraulic power branch of a power distribution transmission. The intermediate plate 2 has receptacles 4 in which are placed damping elements 5 connected via connecting elements 6 with the transmission housing 7. The damping elements 5 are configured so that the intermediate plate 2 has no direct contact to the transmission housing 7 and can freely move in all three axes

against the elasticity of the damping elements 5. The connection elements 6, which are shown here as screws, are all situated upon the same side and thus are well accessible for the installation. Besides screw elements, still other connecting elements such as alignment pins or snap rings can also be considered.

[019] Fig. 2:

A hydraulic pump 1 is connected via an intermediate plate 2 with the hydraulic motor 3, the intermediate plate 2 being non-turnably connected via damping elements 5 with the transmission housing 7. The damping elements 5 are located within the transmission housing 7 and accessible for assembly outside the transmission housing.

[020] Fig. 3:

The intermediate plate 2 has fastening points 8 which are situated radially around the axis of rotation 9 of the hydraulic pump 1. On the fastening points 8 are fastened the damping elements 5 not shown in this figure. The intermediate plate 2 has centerings 10 with which the hydraulic pump and the hydraulic motor can be centered in the transmission housing 7 in order to ensure the exact position of the hydraulic pump and of the hydraulic motor. If the intermediate plate 2 is fixedly connected via the damping elements 5 with the transmission housing, the centering elements are removed again in order that the hydraulic pump and the hydraulic motor can again move freely. An easy assembly is thus ensured.

[021] Fig. 4:

A hydraulic pump 1 and a hydraulic motor 3 are interconnected via an intermediate plate 2, the intermediate plate 2 being elastically fastened via damping elements 5 in the transmission housing. The drive shaft 11 of the hydraulic pump 1 is connected via a shaft 12 with a toothed wheel 13 which communicates with the mechanical power branch of the power distribution transmission. The shaft 12 has on its ends crowned teeth or toothings designed as spiral gearing and is floatingly supported via said toothings 14 in the toothed wheel 13 and the drive shaft 11. By the toothing 14 being designed as crowned teeth and the shaft 12 floatingly supported, movements of the hydraulic pump and of the hydraulic motor are possible and are not transmitted to the running gears of

the toothed wheel 13, since in addition the toothed wheel 13 is fixedly supported in the transmission housing 7 via the bearing 15. The toothed wheel 16, which on one side communicates with the mechanical power branch and on the other, via a shaft 17, with the drive shaft 18 of the hydraulic motor 3, has on its connecting points crowned teeth or toothings 19 designed as spiral gearing whereby the hydraulic motor 3 and the hydraulic pump 1 can freely move and the movements are not transmitted to the toothed wheel 16, since in addition the toothed wheel 16 is supported in the transmission housing 7 via a bearing 20. It is thus ensured that the running gear of the toothed wheel 16 be not affected.

Reference Numerals

1 hydraulic pump	11 drive shaft
2 intermediate plate	12 shaft
3 hydraulic motor	13 toothed wheel
4 receptacles	14 tothing
5 damping elements	15 bearing
6 connecting elements	16 toothed wheel
7 transmission housing	17 shaft
8 fastening points	18 output shaft
9 axis of rotation	19 tothing
10 centering	20 bearing



### Claims

1. Power distribution transmission having one mechanical and one hydraulic power branch, a hydraulic pump (1) and a hydraulic motor (3) being interconnected in the hydraulic power branch and retained in a transmission housing (7) via elastic damping elements (5), characterized in that only in the area in which they are interconnected are said hydraulic pump (1) and said hydraulic motor (3) connected via damping elements (6) with a transmission housing (7).

2. Power distribution transmission according to Claim 1, characterized in that said hydraulic pump (1) and said hydraulic motor (3) communicate with said mechanical power branch via shafts (12, 17) which are floatingly supported and are designed as crowned teeth or as spiral gearing on the connecting points (14, 19).

3. Power distribution transmission according to Claim 2, characterized in that said toothed wheels (13, 16), which are connected via shafts (12, 17) with a hydraulic pump (1) and a hydraulic motor (3), are supported in a transmission housing (7) via bearings (15, 20).

4. Power distribution transmission according to Claim 1, characterized in that said hydraulic motor (3) is connected via an intermediate plate (2) with said hydraulic pump (1) which has receptacles (4) for said damping elements (5).

5. Power distribution transmission according to Claim 4, characterized in that said receptacles (4) for said damping elements (5) are radially disposed around an axis of rotation (9) of said hydraulic pump (1).

6. Power distribution transmission according to Claim 1, characterized in that said hydraulic motor (3) is connected via an intermediate plate (2) with said hydraulic pump (1) which has centering receptacles (110) for centering said intermediate plate (2) in a transmission housing (7).

7. Power distribution transmission according to Claim 1, characterized in that said damping elements are situated in one plane.

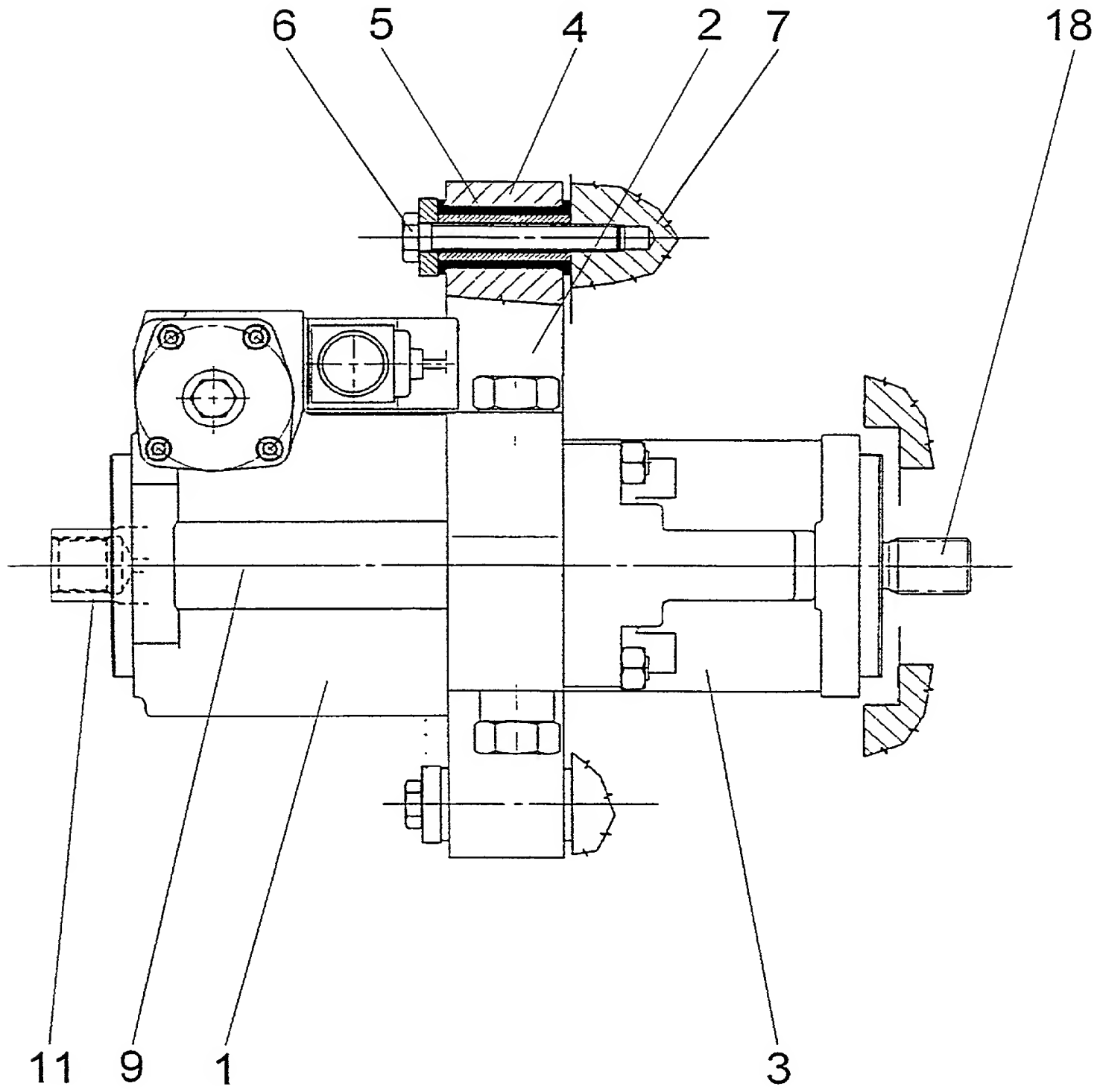


Fig. 1

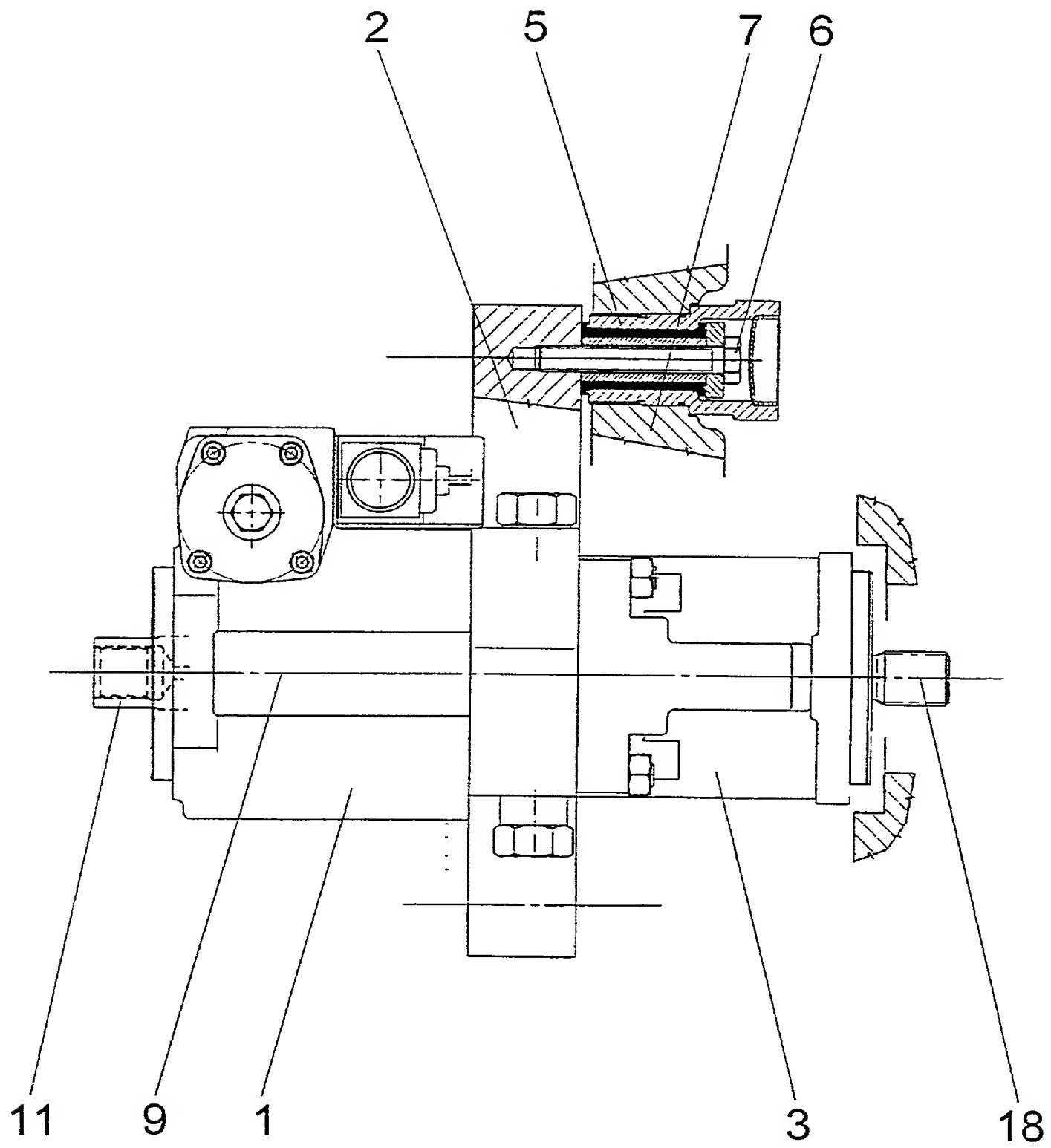


Fig. 2

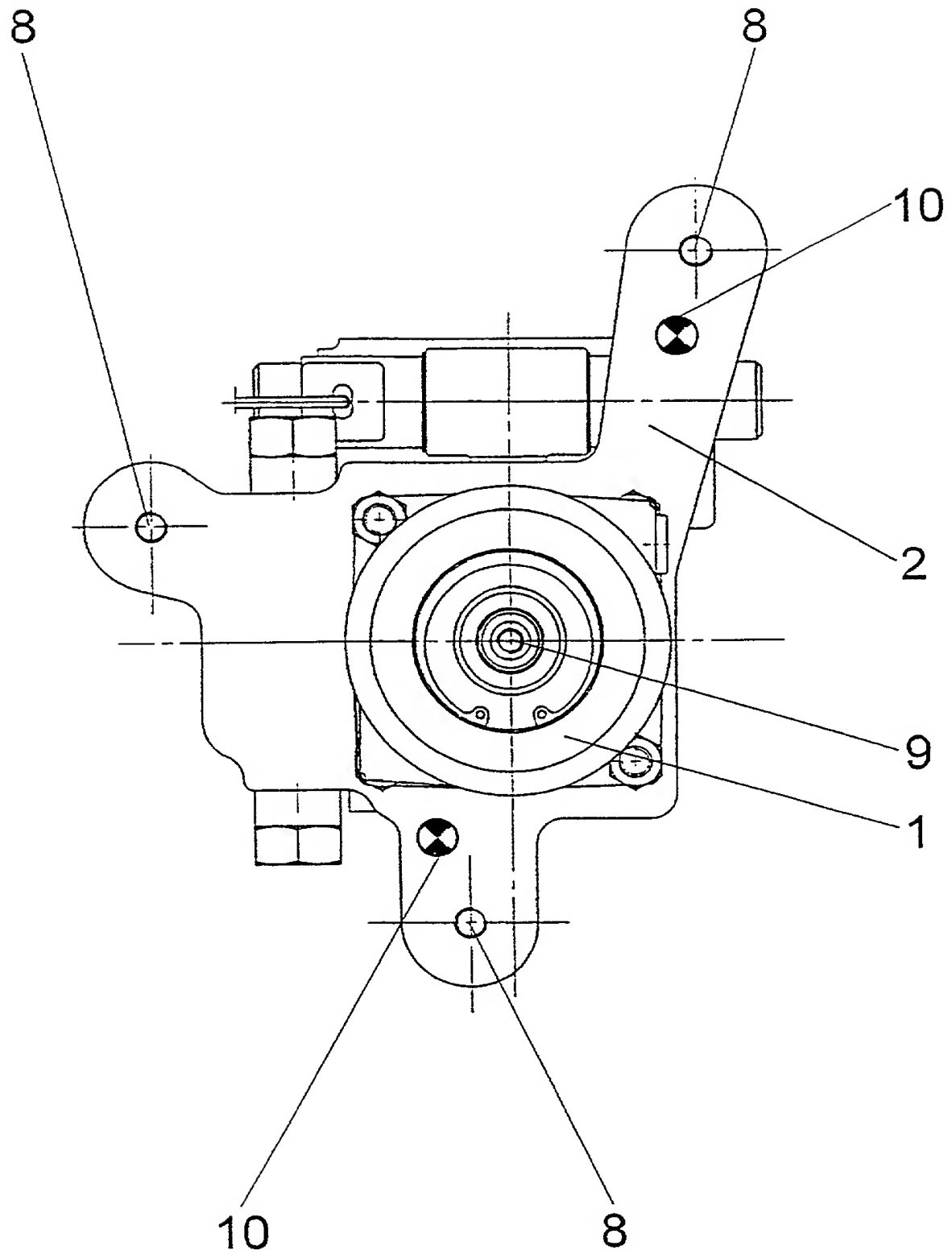


Fig. 3

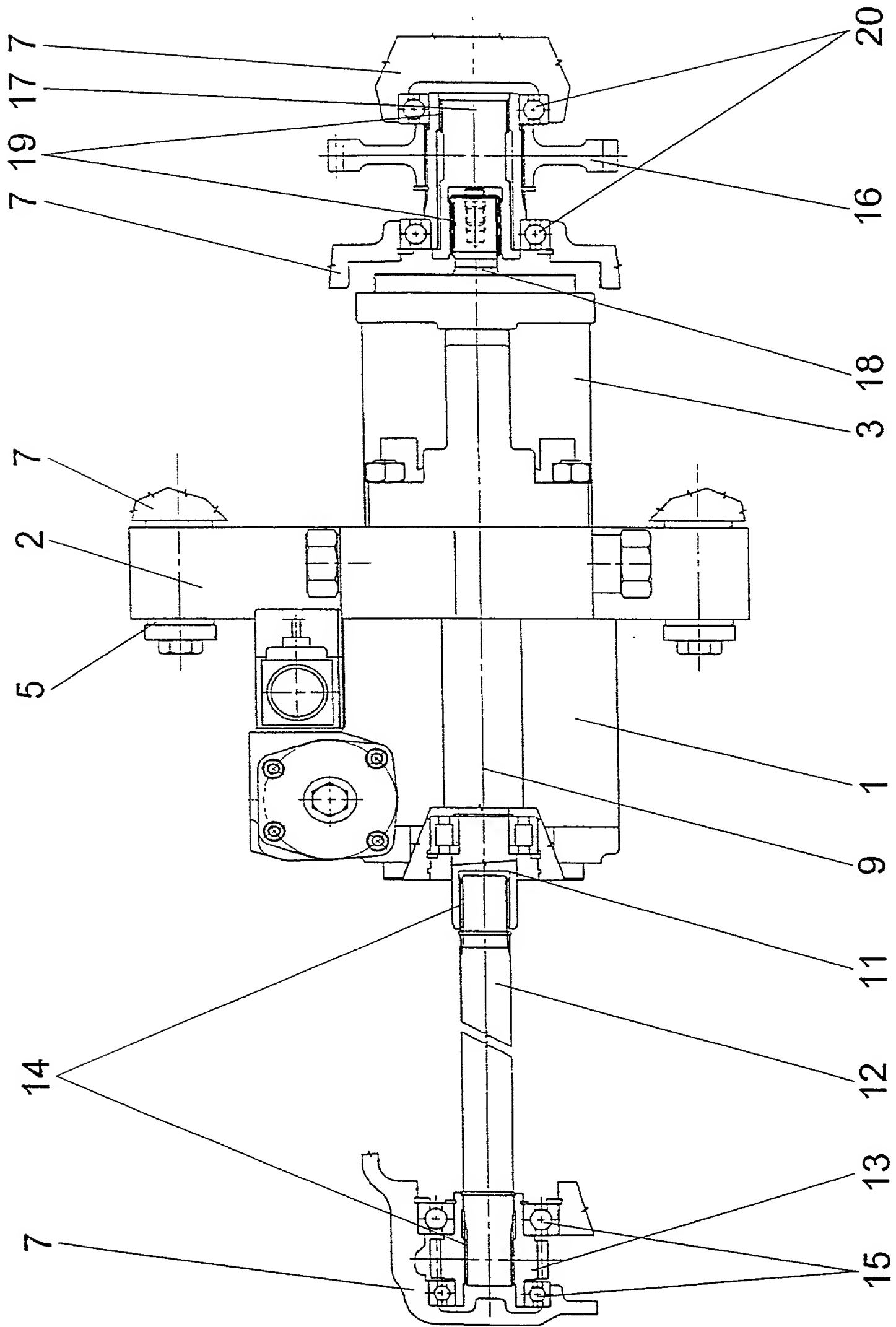


Fig. 4

OFFICE OF THE ATTORNEY GENERAL

**COMBINED DECLARATION AND POWER OF ATTORNEY**  
(Original, Design, National Stage of PCT, Supplemental)

As a below named inventor, I hereby declare that:

**TYPE OF DECLARATION**

This declaration is of the following type: (check one applicable item below)

- original  
design  
supplemental  
**X** National Stage of PCT  
divisional (see added page)  
continuation (see added page)  
continuation-in-part (see added page)

**INVENTORSHIP IDENTIFICATION**

My residence, post office address and citizenship are as stated below next to my name. I believe that the original, first and sole inventor (*if only one name is listed below*) an original, first and joint inventors (*if plural names are listed below*) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

**TITLE OF INVENTION**

**POWER DISTRIBUTION TRANSMISSION**

**SPECIFICATION IDENTIFICATION**

The specification of which: (complete (a), (b) or (c))

- (a) is attached hereto.  
(b) was filed on \_\_\_\_\_ as " Serial No. \_\_\_\_\_  
0 / \_\_\_\_\_ or " Express Mail No. \_\_\_\_\_ (as Serial  
No. not yet known) \_\_\_\_\_ and was amended on \_\_\_\_\_ (if  
applicable).  
(c) **X** was described and claimed in PCT International  
Application No. PCT/EP00/06744 filed on  
14 July 2000 (14.07.200) and as amended under PCT  
Article 19 on \_\_\_\_\_ (if any).

**POWER OF ATTORNEY**

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name(s) and registration number(s))

**3** Anthony G. M. Davis      Registration No. 27,868  
Michael J. Bujold      Registration No. 32,018  
Scott A. Daniels      Registration No. 42,462

Attached as part of this Declaration and Power of Attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

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## ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent Office all information which is known to be material to patentability of this application as defined in § 1.56 of Title 37 of the Code of Federal Regulations.

## PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

### EARLIEST FOREIGN APPLICATION(S), IF ANY FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

COUNTRY	APPLICATION NO.	DATE OF FILING (day,month,year)	PRIORITY CLAIMED UNDER 37 USC 119
Fed. Rep. of Germany	199 33 822.1	(20.07.99) 20 July 1999	<input checked="" type="checkbox"/> YES NO
			YES NO
			YES NO
			YES NO
			YES NO

### ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

## DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature(s)

Full name of ~~sole~~ first inventor Martin HILDEBRAND

Inventor's signature Martin Hildebrand Date 2001-10-01

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20 Inventor's signature *Rudolf Zentsch* Date 2001-10-11

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Full name of **third** joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Residence \_\_\_\_\_

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Full name of **fourth** joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Residence \_\_\_\_\_

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Full name of **fifth** joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Full name of **sixth** joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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Full name of **seventh** joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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